Shri Vile Parle Kelavani Mandal's
DWARKADAS J. SANGHVI COLLEGE OF ENGINEERING
(Autonomous College Affiliated to the University of Mumbai)
NAAC Accredited with "A" Grade (CGPA : 3.18)

End Semester Examination (January 2023)
Academic Year: 2022-2023

Minor in IoT and Industry 4.0
Program: Common for All Programs (except Electronics & Telecommunication Engineering)
Max. Marks: 75 **Duration:** 3 **Hr.**
Class: TE Semester: V
Course: Sensor Technology Course Code: DJ19MN8C1

Instructions: Candidates should read carefully the instructions printed on the question paper and on the cover page of the Answer Book, which is provided for their use.
(1) This question paper contains two pages.
(2) All Questions are Compulsory.
(3) All questions carry equal marks.
(4) Answer to each new question is to be started on a fresh page.
(5) Figures in the brackets on the right indicate full marks.
(6) Assume suitable data wherever required, but justify it.
(7) Draw the neat labelled diagrams, wherever necessary.

Question No.		Max. Marks
Q1 (a)	Define Range, Sensitivity, Span, Error, Bandwidth. **OR** What are the different types of Transducers?	[05] [05]
Q1 (b)	i. What is the selection criteria of a transducer? ii. Draw and explain the working of Capacitive Transducer.	[05] [05]
Q2 (a)	i. What is an Active Far Infrared (AFIR) Sensors? ii. Explain Thermister and give its specification. **OR** i. Explain the principle of Photodiodes. ii. What are Optical Actuators?	[06] [04] [05] [05]
Q2 (b)	What are Thermomechanical Sensors and Actuators.?	[05]
Q3 (a)	Explain the construction and working of Stepper Motor briefly. **OR** Classify Pressure Sensors and explain basic working of pressure sensors.	[05] [05]
Q3 (b)	i. Describe Capacitive Position, Proximity, and Displacement Sensors. ii. Draw and explain Gyroscope draw. **OR** i. Explain in brief different types of Accelerometers. ii. What is fluxgate magnetometer.	[05] [05] [05] [05]
Q4 (a)	i. What are the functions of Data Loggers? ii. What is the need for Signal Conditioning? **OR** i. How is Wheatstone Bridge used for Signal Conditioning? ii. Explain Flash Type ADC.	[05] [05] [05] [05]
Q4 (b)	Explain in brief Piezoelectric Crystal.	[05]

Q5 (a)	**Solve any two.** i. Define thick and thin film sensors? ii. What are the standards for smart sensor interface? iii. Write in brief about Home Appliance Sensors. iv. Explain in detail Sensors for Environmental Monitoring.	 [05] [05] [05] [05]
Q5 (b)	What is microelectromechanical systems.	[05]